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Specification

1. Title of the Invention
FACIAL COSMETIC

2. Claim

(1) Facial cosmetic characterized by the fact that it contains 1-70 percent by weight of the organic silicone resin described by (A) hereinbelow, 10-98 percent by weight of the volatile hydrocarbon oil described by (B) hereinbelow, and 0.5-55 percent by weight of powder.

(A) An organic silicone resin comprising units of the generic formula $R_nSiO_{(4-n)/2}$ (where R denotes a hydrocarbon group or phenyl group with 1 to 6 carbon atoms, and n denotes a number ranging in value from 1.0 to 1.8)

(B) Volatile hydrocarbon oil with a boiling point ranging from 60 to 260°C at room temperature.

3. Detailed Description of the Invention
[Industrial Field of Application]

The present invention relates to facial cosmetics. More specifically, it relates to facial cosmetics that have good moisture resistance, perspiration resistance, oil resistance, and lasting qualities.

What is meant by the term facial cosmetic in the present invention comprises undercoats as well as conventional makeup.

[Prior Art]

There are various forms of facial cosmetics including solid foundations, solid eye shadows, oily foundations, and lipsticks, all of which consist of powder and oil. There are also emulsion-type foundations and other facial cosmetics, based on emulsion systems, all of which are characterized by the fact that they contain large amounts of inorganic powders such as talc, kaolin, red iron oxide, titanium oxide, and titanium-mica pearlescent pigments and organic pigments such as nylon, cellulose, and tar pigments.

Such facial cosmetics are subject to spotting, running, and the like from the action of sebum, perspiration, or the oils in other cosmetics. Women are universally dissatisfied with such running and splotchiness, especially in the hot and humid

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conditions of summer, and improvement is desired.

For example, it is known to use ethyl hydroxyethyl cellulose as a film-forming agent to obtain facial cosmetics with good moisture and oil resistance (Japanese Unexamined Patent Application Tokkai No. Sho 53-62994), but such products do not have satisfactory lasting qualities in actual use.

Cosmetic undercoats are used to improve the spreading qualities and finish of facial cosmetics, but little attention has been given to their lasting qualities.

[Problems To Be Solved by the Invention]

In view of this situation, the present inventors devoted serious study to obtaining a facial cosmetic which affords excellent prevention of running and splotchiness. As a result, they discovered that a facial cosmetic with a refreshing feel, good spreading qualities, and the ability to prevent running and splotchiness can be obtained by using a specific organic silicone resin together with a volatile hydrocarbon and then adding powder to the mixture, leading to the present invention.

[Means of Solving the Problems]

Thus, the present invention is a facial cosmetic characterized by the fact that it contains 1-70 percent by weight of the organic silicone resin described by (A) hereinbelow, 10-98 percent by weight of the volatile hydrocarbon oil described by (B) hereinbelow, and 0.5-55 percent by weight of powder.

(A) An organic silicone resin comprising units of the generic formula $R_n\text{SiO}$ ($4-n/2$) (where R denotes a hydrocarbon group or phenyl group with 1 to 6 carbon atoms, and n denotes a number ranging in value from 1.0 to 1.8)

(B) Volatile hydrocarbon oil with a boiling point ranging from 60 to 260°C at room temperature.

The organic silicone resin described by (A) hereinabove is a suitable combination of $R_n\text{SiO}_{1/2}$ units, $R_2\text{SiO}$ units, $RSiO_{1/2}$ units, and SiO_2 units. It is preferred to select them in proportions that satisfy the generic formula $R_n\text{SiO}$ ($4-n/2$) (where n denotes a number ranging in value from 1.0 to 1.8), and it is preferred that the molecular weight ranges from approximately 1,500 to 10,000.

This organic silicone resin is soluble in benzene and can be manufactured by a variety of methods. One example is to add a compound described by the general formula $R_2\text{SiX}$, $R_2\text{SiX}_2$, $RSiX_3$, or SiX_4 (where X denotes a hydrolyzable radical, for example chlorine, bromine, fluorine, an alkoxy radical such as a methoxy, or ethoxy radical, or an acyloxy radical) to a solvent suitable for obtaining the desired resin

composition such as toluene, benzene, or xylene and then add this solvent mixture to a sufficient amount of water to obtain a suitable acidic solvent environment for the desired hydrolysis and co-condensation. The aqueous phase is then removed from the resultant two-phase system, the remaining resinous material is neutralized with a sufficient amount of sodium bicarbonate or other alkaline material, and the solvent is removed to obtain the desired organic silicone resin.

In the present invention, the organic silicone resin is blended in amounts of 1 to 70 percent by weight of the entire cosmetic material.

The volatile hydrocarbon oil used in the present invention has a boiling point ranging from 60 to 260°C at room temperature. Examples include Isopar (Registered trademark) A, B, C, D, E, G, H, K, L, and M (Exxon Co.), Shellsol (Registered trademark) 71, (Shell Co.), and Solutrol (Registered trademark) 100, 130, and 220 (Phillips Co.)

All of these oils are volatile and can be used as solvents for organic silicone resin.

The volatile hydrocarbon oil is blended in amounts ranging from 10 to 89 percent by weight of the facial cosmetic.

The powder used in the present invention may be any powder conventionally used in facial cosmetics, including inorganic powders such as talc, mica, kaolin, calcium carbonate, China white, titanium dioxide, red iron oxide, yellow iron oxide, black iron oxide, ultramarine blue, Prussian blue, chromium hydroxide, bismuth oxychloride, and titanium-mica pearlescent pigments; organic powders such as red No. 201, red No. 202, yellow No. 5 aluminum lake, and blue No. 2 aluminum lake; resin powders such as nylon, cellulose, and polyethylene; and metal soaps.

The powder is blended in amounts of 0.5 to 55 percent by weight of the entire facial cosmetic.

Obviously, water-in-oil or oil-in-water emulsified facial cosmetics which retain the ability to prevent running and splotchiness can be obtained with emulsion techniques in which water-soluble components and suitable surface-active agents are used in addition to the essential components named hereinabove.

In addition to the substances mentioned hereinabove, oils, waxes, medicaments, fragrances, or other volatile components may be used in the facial cosmetic of the present invention in amounts that do not quantitatively or qualitatively compromise the effect of the invention.

The present invention is described in further detail hereinbelow by means of working examples. The present invention is not limited by these examples. Mixing proportions are given as percentages by weight.

Working Example 1 Oily Foundation

{1}	Kaolin	25.0
{2}	Titanium dioxide	15.0
{3}	Red iron oxide	3.0
{4}	Microcrystalline wax	4.0
{5}	Liquid paraffin	5.0
{6}	Sorbitan sesquiolate	1.0
{7}	Organic silicone resin with a molecular weight of approximately 3,000 described by the generic formula $(CH_3)_{1.5}SiO_{1.1}$ where the ratio of $(CH_3)_2SiO_{1.2}$ units to SiO_2 units = 1.5:1	2.0
{8}	Isopar (Registered trademark) E (Boiling point 116-143°C)	Balance
{9}	Fragrance	As suitable

(4)-(8) were melted by stirring at 70-80°C, and then (1)-(3) were added and dispersed. The mixture was deaerated, (9) was added, and the mixture was packaged in suitable containers to obtain oily foundation.

The oily foundation of Working Example 1 showed good moisture resistance, oil resistance, perspiration resistance, and little running or splotchiness.

Comparative Example 1 Oily Foundation

{1}	Kaolin	25.0
{2}	Titanium dioxide	15.0
{3}	Red iron oxide	3.0
{4}	Microcrystalline wax	4.0
{5}	Liquid paraffin	5.0
{6}	Sorbitan sesquiolate	1.0
{7}	Ethyl hydroxyethyl cellulose	10.0
{8}	Ethyl alcohol	10.0
{9}	Isopar (Registered trademark) E (Boiling point 116-143°C)	Balance
{10}	Fragrance	As desired

(7) and (8) were melted by stirring at 70-80°C and dispersed in (9). (4)-(6) were added and melted by heating. (1)-(3) were added and uniformly dispersed, and the mixture was deaerated. (10) was added, and the mixture was stirred and packaged in the prescribed containers to obtain oily

foundation.

Working Example 1 and Comparative Example 1 were subjected to the following evaluation.

Filter paper was impregnated with water or squalene. Working Example 1 and Comparative Example 1 were applied to the papers, and pressure from a dry nylon sheet was applied 10 times with a vertical motion. When this procedure was completed, the amount of the sample transferred from the nylon sheet to the filter paper [sic] was determined by evaluating the darkness of the color visually.

[Scoring System]

- 1 No transference.
- 2 Slight transference.
- 3 Marked transference.

The results, shown in Table 1, are the mean values from five testing cycles.

Table 1

	Water	Squalene
Working Example 1	1.0	1.0
Comparative Example 1	2.2	2.8

The results show that the facial cosmetic obtained in Working Example 1 resisted sloughing off with water and squalene: i.e., it has better lasting qualities, moisture resistance, and oil resistance than Comparative Example 1, a prior art oily foundation with good lasting qualities.

Working Example 2 Liquid Lipstick

{1}	Isopar (Registered trademark) A (Boiling point 66-70°C)	20.0
{2}	Solutrol (Registered trademark) 220 (Boiling point 240-260°C)	20.0
{3}	Organic silicone resin with a molecular weight of approximately 5,000 described by the generic formula $(CH_3)_{1.5}SiO_{1.5}$ where the ratio of $(CH_3)_2SiO_{1.2}$ units to SiO_2 units is 0.5:1	40.0
{4}	Glyceryl triisostearate	10.0
{5}	Red No. 226	10.0
{6}	Fragrance	As suitable

(1)-(3) were melted by stirring at 50-60°C. In a separate operation, (4) and (5) were worked with a roller, then added to (1)-(3), and dispersed. The mixture was deaerated, and (6) was added to obtain liquid lipstick.

The liquid lipstick obtained in Working Example 2 showed good moisture resistance, oil resistance, perspiration resistance, and little spotting or running due to adhesion to drinking utensils or the like. The product also had a refreshing feel on the skin.

Working Example 3 Mascara

- | | | |
|-----|--|-------------|
| {1} | Shellsol (Registered trademark) 71 | |
| | (Boiling point 173-195°C) | 4.5 |
| {2} | Organic silicone resin with a molecular weight of approximately 2,000 described by the generic formula $(CH_3)_{1.23}SiO_{1.34}$ where the ratio of $(CH_3)_2SiO_{1/2}$ units to SiO_2 units is 0.8:1. | 70.0 |
| {3} | Black iron oxide | 15.0 |
| {4} | P.O.E. (20 moles) sorbitan monolaurate | 0.5 |
| {5} | Fragrance | As suitable |

(1)-(3) were melted by stirring at 70-80°C, and (4) and (5) were added and dispersed. The mixture was deaerated, and (6) was added to obtain mascara.

The mascara of Working Example 3 showed little breakdown due to tears or the like and did not stick to the eyelids.

Working Example 4 Cosmetic Undercoat

- | | | |
|------|---|------|
| {1} | Kaolin | 10.0 |
| {2} | Titanium dioxide | 5.0 |
| {3} | Red iron oxide | 0.3 |
| {4} | Yellow iron oxide | 0.2 |
| {5} | Methylphenylpolysiloxane
($n = 100$) | 20.0 |
| {6} | Solutrol (Registered trademark) 100
(Boiling point 160-175°C) | 10.0 |
| {7} | Solid paraffin | 5.0 |
| {8} | Microcrystalline wax | 4.0 |
| {9} | Sorbitan sesquiolate | 1.0 |
| {10} | Organic silicone resin with a molecular weight of approximately 3,000 described by the generic formula $(CH_3)_{1.23}(C_6H_5)_{0.17}SiO_{1.30}$ where the ratio of $(CH_3)_2SiO_{1/2}$ units to $(C_6H_5)SiO_{3/2}$ units to $(C_6H_5)_2SiO_2$ units is 0.9:0.1:0.2:1 | 2.0 |
| {11} | Isopar (Registered trademark) H | |

(Melting point 171-193°C)

{12} Fragrance

24.5

As desired

(1)-(4) were mixed and reduced to powder. In a separate operation, (5)-(11) were mixed and melted at 70-80°C. The two mixtures were stirred together and deaerated, and (12) was added to obtain a cosmetic undercoat.

The cosmetic undercoat of Working Example 4 improved the spreading qualities of facial cosmetic applied on top of it and suppressed facial cosmetic breakdown.

Working Example 5 Highlighter

- | | | |
|-----|--|-------------|
| {1} | Solutrol (Registered trademark) 130
(Boiling point 170-208°C) | 95.0 |
| {2} | Organic silicone resin with a molecular weight of approximately 8,000 described by the generic formula $(CH_3)_{0.33}(C_6H_5)_{0.67}SiO_{1.63}$ where the ratio of $(C_6H_5)_2SiO_{3/2}$ units to $(CH_3)_2SiO$ units is 5.67:1. | 4.5 |
| {3} | Titanium-mica pearlescent pigment | 0.5 |
| {4} | Fragrance | As suitable |

(1) and (2) were melted by heating, and (3) and (4) were added and dispersed to obtain highlighter.

The highlighter obtained in Working Example 5 showed little running or splotchiness and had a refreshing feel on the skin.

[Effect of the Invention]

The facial cosmetic of the invention shows good moisture resistance, perspiration resistance, oil resistance, and little running or splotchiness. It also spreads well and has a refreshing feel on the skin.

Applicant: Kabushiki Kaisha Shiseido

Amendment (Originated by Applicant)

April 14, May 17, 1985

To The Commissioner of the Patent Office, the Honorable
Manabu Shiga:

Accepted [Stamped]

1. Case Identifier
Japanese Patent Application No. Sho 60 59-279161

2. Title of the Invention
FACIAL COSMETIC

(3) "Room temperature" in line 16, page 5 of the Specification is to be amended to "ordinary temperatures."

3. Party Filing the Amendment
Relationship to this case: Applicant
Name: Kabushiki Kaisha Shiseido (195)
Representative: Yoshio Ono
Address: 5-5-7 Ginza, Chuo-ku, Tokyo

(Enclosure)

4. Subject of the Amendment
The "Claim" and "Detailed Description of the Invention" sections of the Specification.

2. Claim

(1) Facial cosmetic characterized by the fact that it contains 1-70 percent by weight of the organic silicone resin described by (A) hereinbelow, 10-98 percent by weight of the volatile hydrocarbon oil described by (B) hereinbelow, and 0.5-55 percent by weight of powder.

(A) An organic silicone resin comprising units of the generic formula $R_n\text{SiO}_{(4-n)/2}$ (where R denotes a hydrocarbon group or phenyl group with 1 to 6 carbon atoms, and n denotes a number ranging in value from 1.0 to 1.8)

(B) Volatile hydrocarbon oil with a boiling point ranging from 60 to 260°C at ordinary temperatures.

5. Description of the Amendment

(1) The "Claim" section is to be amended as shown on the enclosure.

(2) "Room temperature" in line 10, page 4 of the Specification is to be amended to "ordinary temperatures."